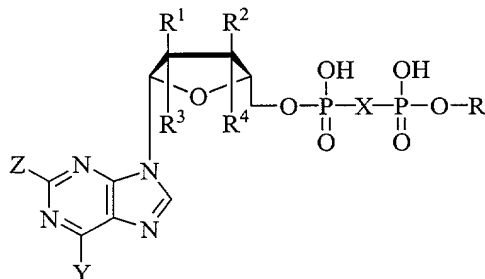


WE CLAIM:

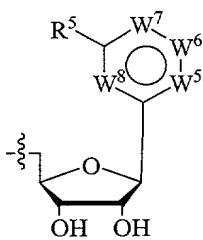
1. A compound of the formula (I):



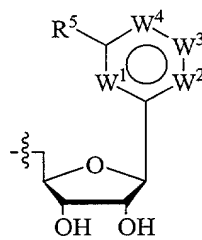
(I)

or its pharmaceutically acceptable salt thereof; wherein

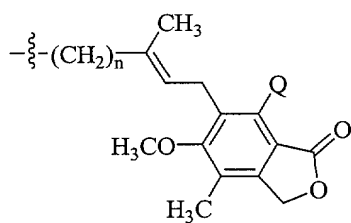
R is



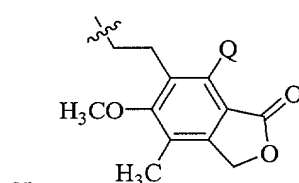
(II)



(III)



(IV)



(V)

X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene;

Y is hydrogen, halogen (F, Cl, Br, I), NH₂, NHR⁶, NR⁶R⁷, NHOH, NHOR⁶, NHNH₂, NR⁶NH₂, NHNHR⁶, SH, SR⁶, OH or OR⁶;

Z is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^8 , NR^8R^9 , NHOH , NHOR^8 , NHNH_2 , NR^8NH_2 , NHNHR^8 , SH , SR^8 , OH , OR^8 ;

$\text{W}^1\text{-W}^4$ are same or different, and independently methyne ($-\text{CH}=\text{}$), azomethyne ($-\text{N}=\text{}$) or sulfur;

$\text{W}^5\text{-W}^8$ are same or different, and independently methyne ($-\text{CH}=\text{}$) or azomethyne ($-\text{N}=\text{}$);

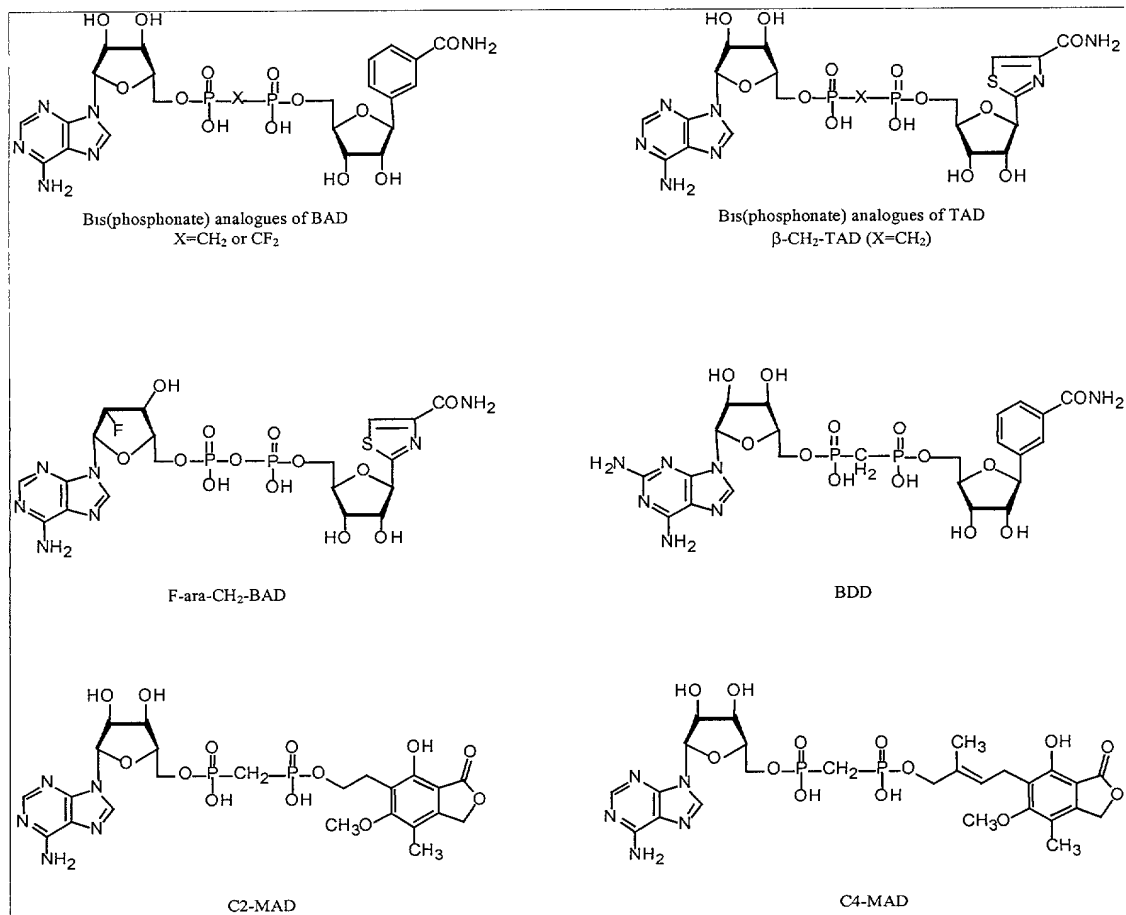
R^1 , R^2 , R^3 and R^4 are independently hydrogen, hydroxyl or fluorine;

R^5 is halogen (F, Cl, Br, I), CN , CONH_2 , CO_2Me , CO_2Et or CO_2H ; and

R^6 , R^7 , R^8 and R^9 are independently a lower alkane or alkene of 1, 2, 3, 4, 5 or 6 carbons or aryl or aralkyl;

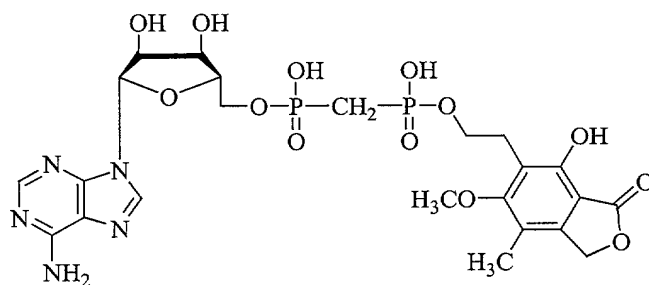
wherein the compound is specifically not tiazole-4-carboxamide adenine dinucleotide (TAD) or benzamide adenine dinucleotide (BAD).

2. The compound of Claim 1, wherein the compound of formula (I) is selected from the group consisting of the following:



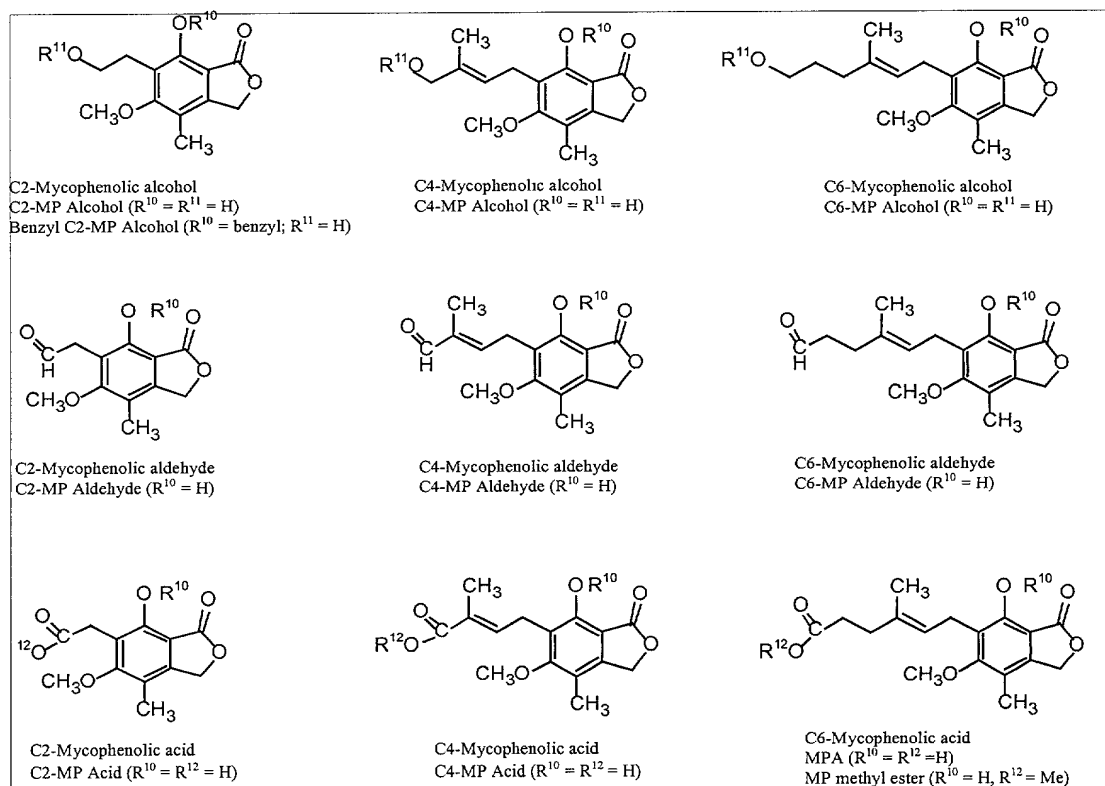
or its pharmaceutically acceptable salt thereof, wherein X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene.

3. A compound of the formula:



or its pharmaceutically acceptable salt thereof.

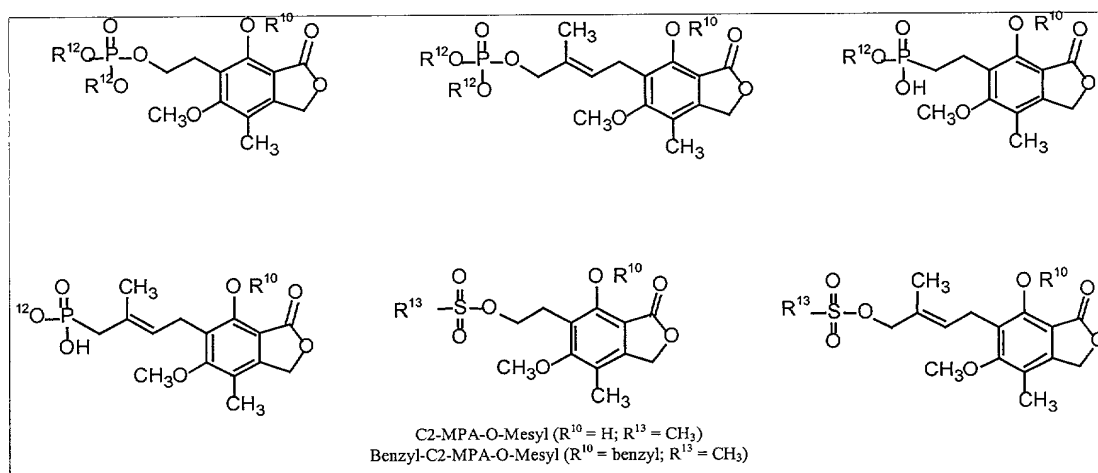
4. A compound selected from the group consisting of the following:



or its pharmaceutically acceptable salt thereof; wherein

each R^{10} and R^{11} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group, and each R^{12} is independently hydrogen, alkyl or aryl.

5. A compound selected from the group consisting of the following:



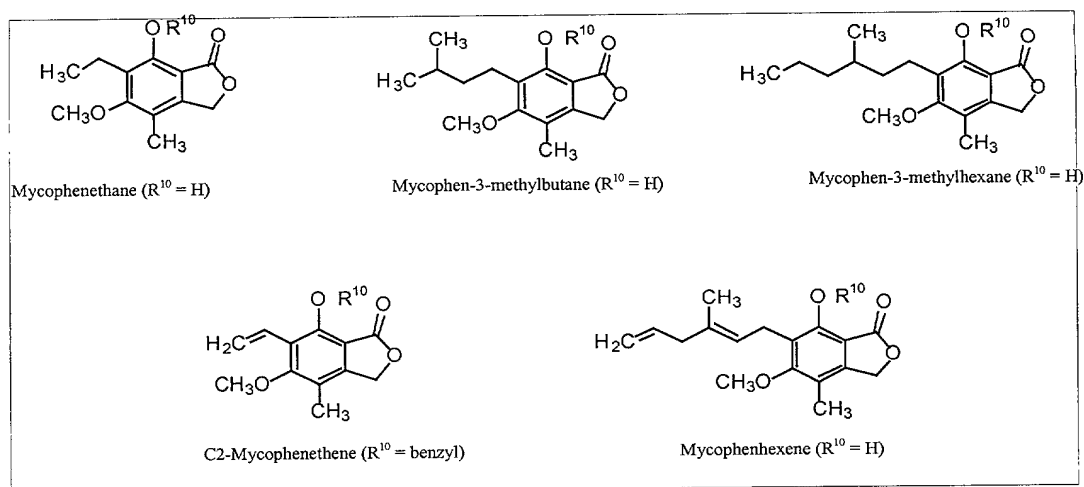
or its pharmaceutically acceptable salt thereof; wherein

each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

each R^{12} is independently hydrogen, alkyl or aryl; and

R^{13} is lower alkyl (i.e. a C_1 , C_2 , C_3 , C_4 , C_5 or C_6 alkyl), lower alkenyl (i.e. a C_2 , C_3 , C_4 , C_5 or C_6 alkenyl), lower alkynyl (i.e. a C_2 , C_3 , C_4 , C_5 or C_6 alkynyl) or a C_3 - C_8 cycloalkyl.

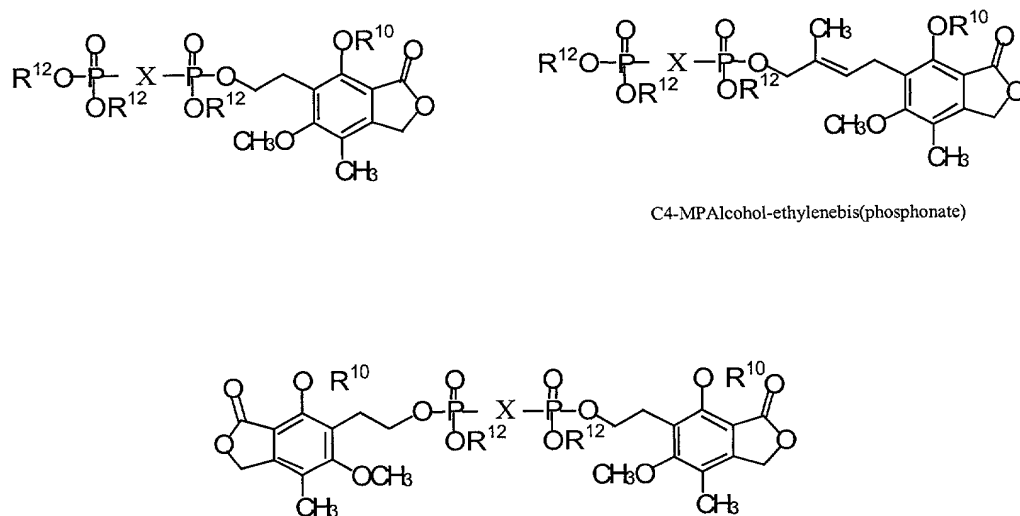
6. A compound selected from the group consisting of the following:



or its pharmaceutically acceptable salt thereof; wherein

each R¹⁰ is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group.

7. A compound selected from the group consisting of the following:



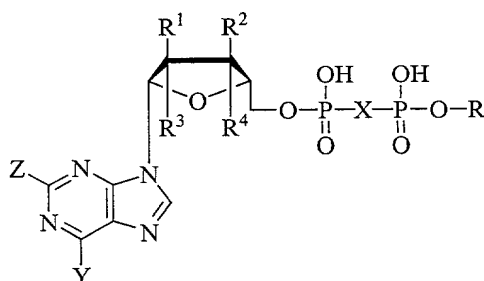
or its pharmaceutically acceptable salt thereof, wherein

X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene; and

each R¹⁰ is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group; and

each R¹² is independently hydrogen, alkyl or aryl.

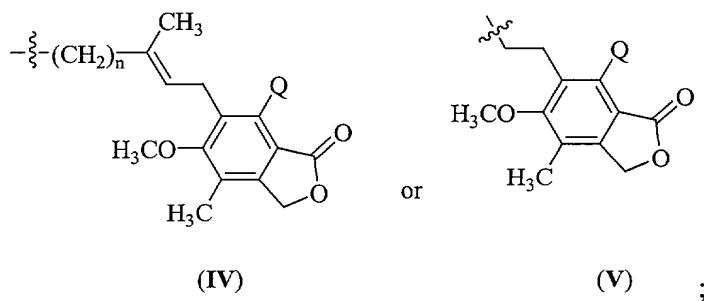
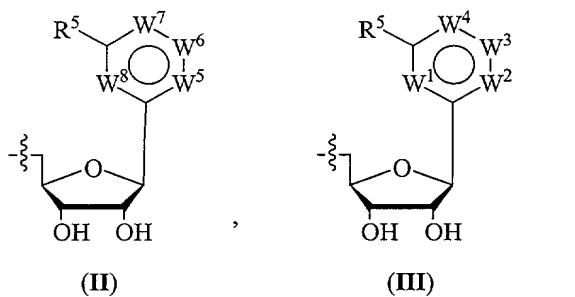
8. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound of the formula (I):



(I)

or its pharmaceutically acceptable salt thereof; wherein

R is



X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene;

Y is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^6 , NR^6R^7 , NHOH , NHOR^6 , NHNH_2 , NR^6NH_2 , NHNHR^6 , SH , SR^6 , OH or OR^6 ;

Z is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^8 , NR^8R^9 , NHOH , NHOR^8 , NHNH_2 , NR^8NH_2 , NHNHR^8 , SH , SR^8 , OH , OR^8 ;

$\text{W}^1\text{-W}^4$ are same or different, and independently methyne ($-\text{CH}=\text{}$), azomethyne ($-\text{N}=\text{}$) or sulfur;

$\text{W}^5\text{-W}^8$ are same or different, and independently methyne ($-\text{CH}=\text{}$) or azomethyne ($-\text{N}=\text{}$);

R^1 , R^2 , R^3 and R^4 are independently hydrogen, hydroxyl or fluorine;

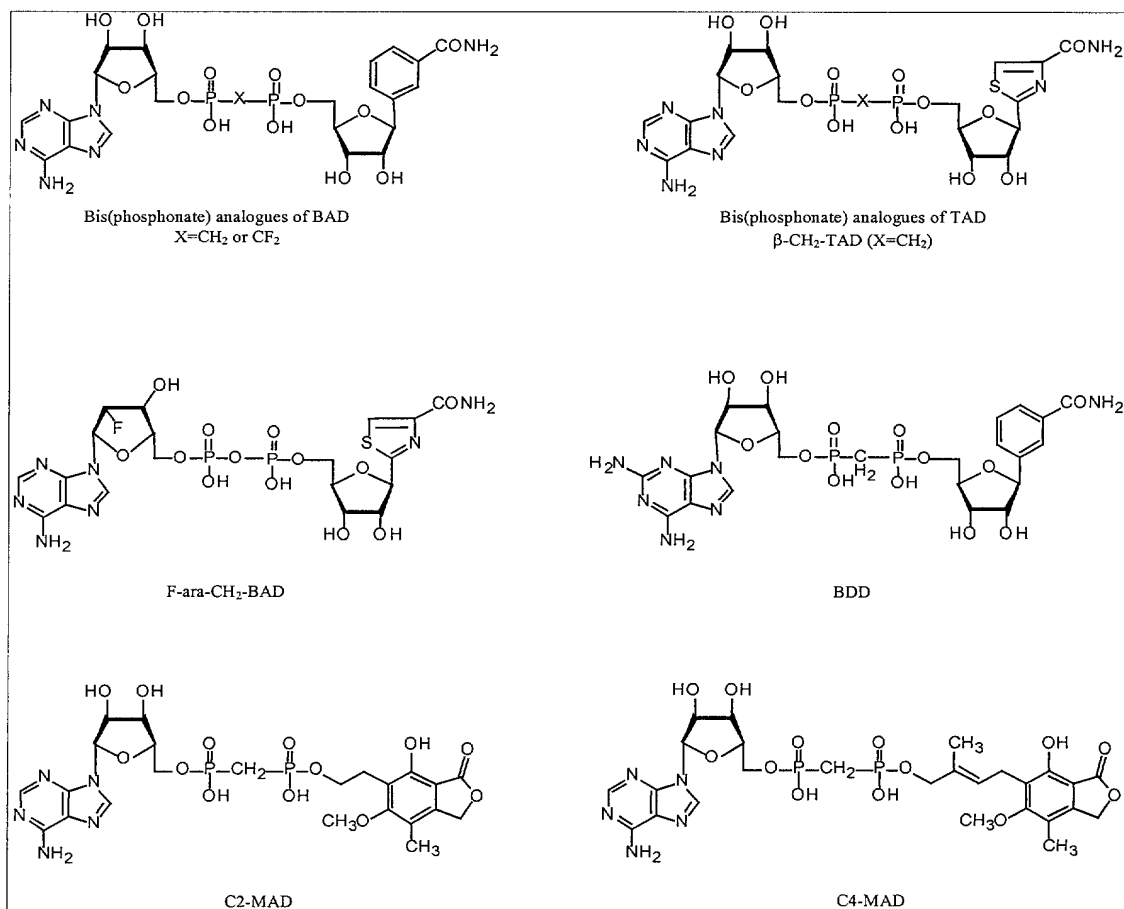
R^5 is halogen (F, Cl, Br, I), CN , CONH_2 , CO_2Me , CO_2Et or CO_2H ; and

R^6 , R^7 , R^8 and R^9 are independently a lower alkane or alkene of 1, 2, 3, 4, 5 or 6 carbons or aryl or aralkyl;

wherein the compound is specifically not thiazole-4-carboxamide adenine dinucleotide (TAD) or benzamide adenine dinucleotide (BAD);

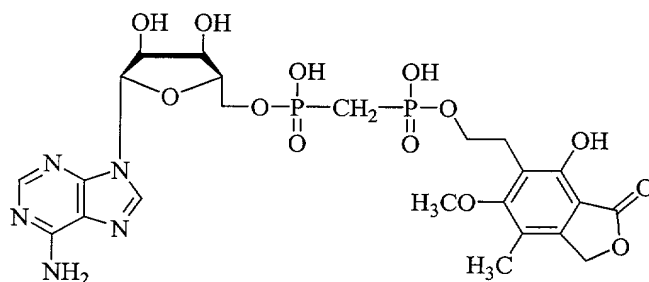
in a pharmaceutically acceptable carrier or diluent.

9. The pharmaceutical composition of Claim 8, wherein the compound of formula (I) is selected from the group consisting of the following:



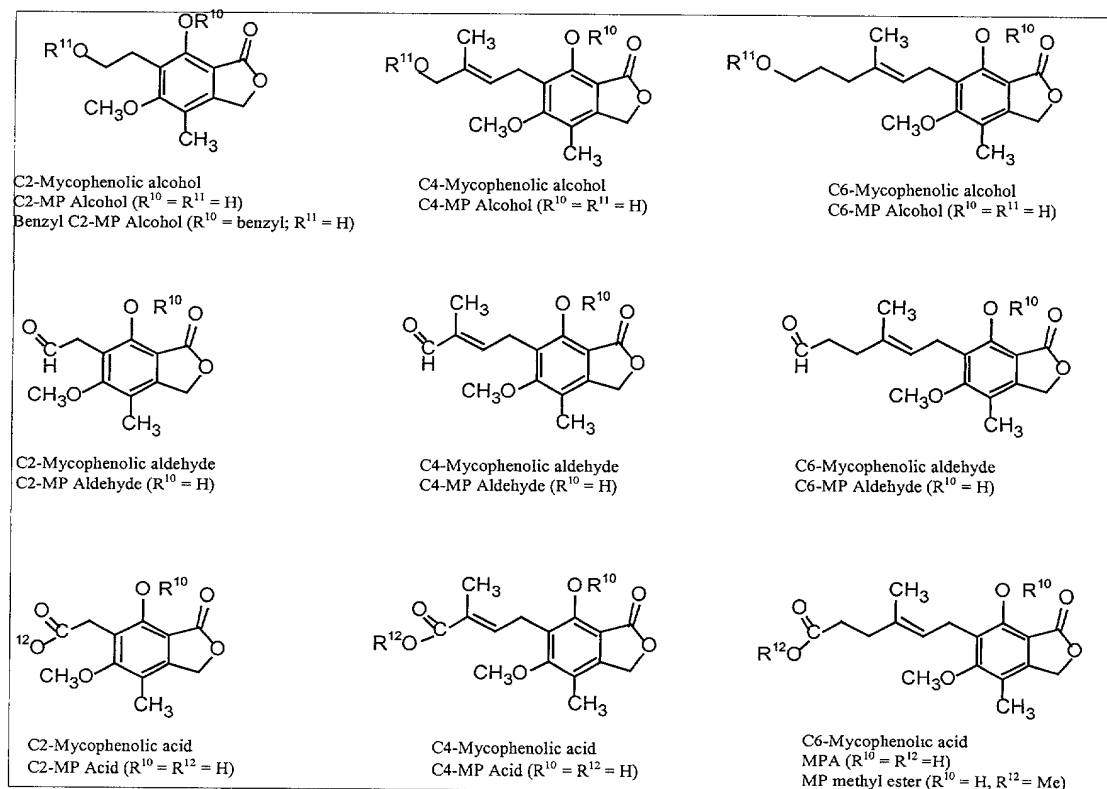
or its pharmaceutically acceptable salt thereof, wherein X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene.

10. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound of the formula:



or its pharmaceutically acceptable salt thereof, in a pharmaceutically acceptable carrier or diluent.

11. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound selected from the group consisting of the following:

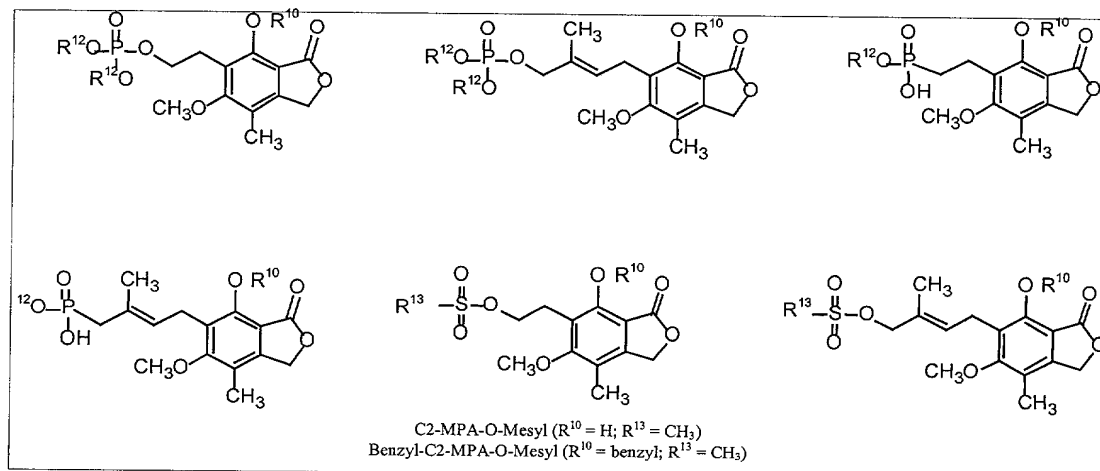


or its pharmaceutically acceptable salt thereof; wherein

each R^{10} and R^{11} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group, and each R^{12} is independently hydrogen, alkyl or aryl;

in a pharmaceutically acceptable carrier or diluent.

12. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound selected from the group consisting of the following:



or its pharmaceutically acceptable salt thereof; wherein

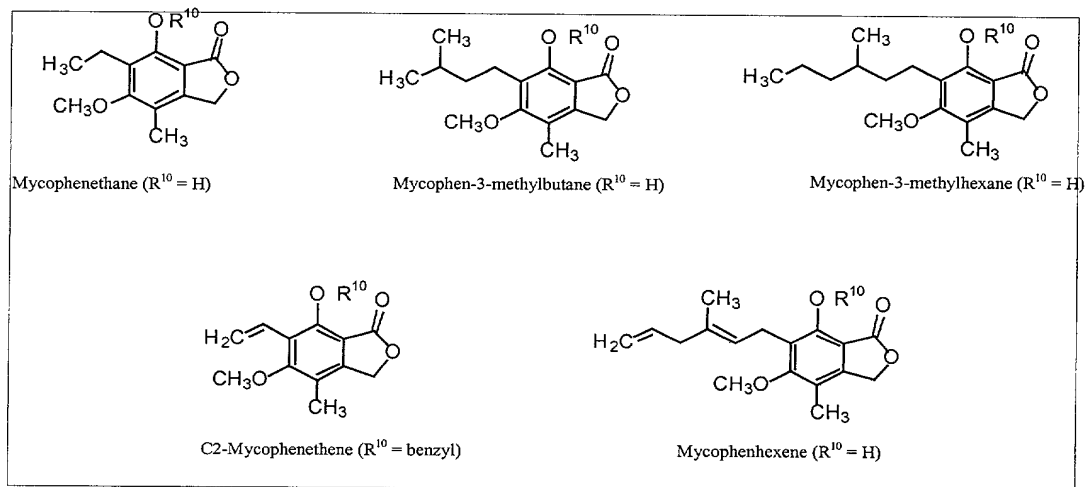
each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

each R^{12} is independently hydrogen, alkyl or aryl; and

R^{13} is lower alkyl (i.e. a C₁, C₂, C₃, C₄, C₅ or C₆ alkyl), lower alkenyl (i.e. a C₂, C₃, C₄, C₅ or C₆ alkenyl), lower alkynyl (i.e. a C₂, C₃, C₄, C₅ or C₆ alkynyl) or a C₃-C₈ cycloalkyl;

in a pharmaceutically acceptable carrier or diluent.

13. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound selected from the group consisting of the following:

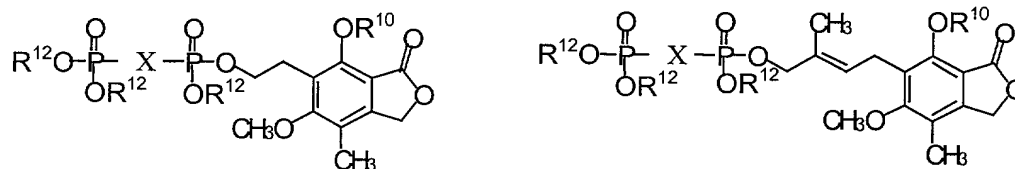


or its pharmaceutically acceptable salt thereof; wherein

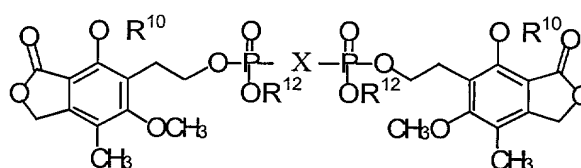
each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

in a pharmaceutically acceptable carrier or diluent.

14. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound selected from the group consisting of the following:



C4-MPA alcohol-ethylenebis(phosphonate)



or its pharmaceutically acceptable salt thereof, wherein

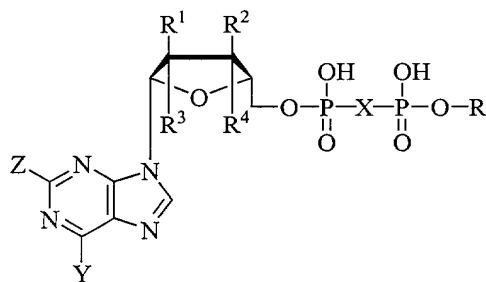
X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene; and

each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group; and

each R^{12} is independently hydrogen, alkyl or aryl;

in a pharmaceutically acceptable carrier or diluent.

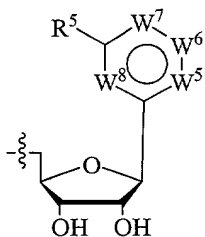
15. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound of the formula (I):



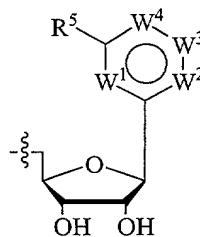
(I)

or its pharmaceutically acceptable salt thereof; wherein

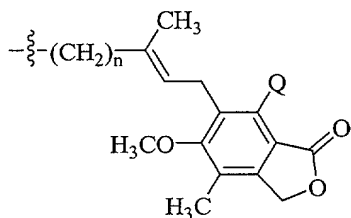
R is



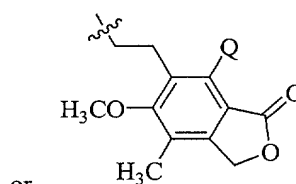
(II)



(III)



(IV)



(V)

;

X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene;

Y is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^6 , NR^6R^7 , NHOH , NHOR^6 , NHNH_2 , NR^6NH_2 , NHNHR^6 , SH , SR^6 , OH or OR^6 ;

Z is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^8 , NR^8R^9 , NHOH , NHOR^8 , NHNH_2 , NR^8NH_2 , NHNHR^8 , SH , SR^8 , OH , OR^8 ;

$\text{W}^1\text{-W}^4$ are same or different, and independently methyne ($-\text{CH}=\text{}$), azomethyne ($-\text{N}=\text{}$) or sulfur;

$\text{W}^5\text{-W}^8$ are same or different, and independently methyne ($-\text{CH}=\text{}$) or azomethyne ($-\text{N}=\text{}$);

R^1 , R^2 , R^3 and R^4 are independently hydrogen, hydroxyl or fluorine;

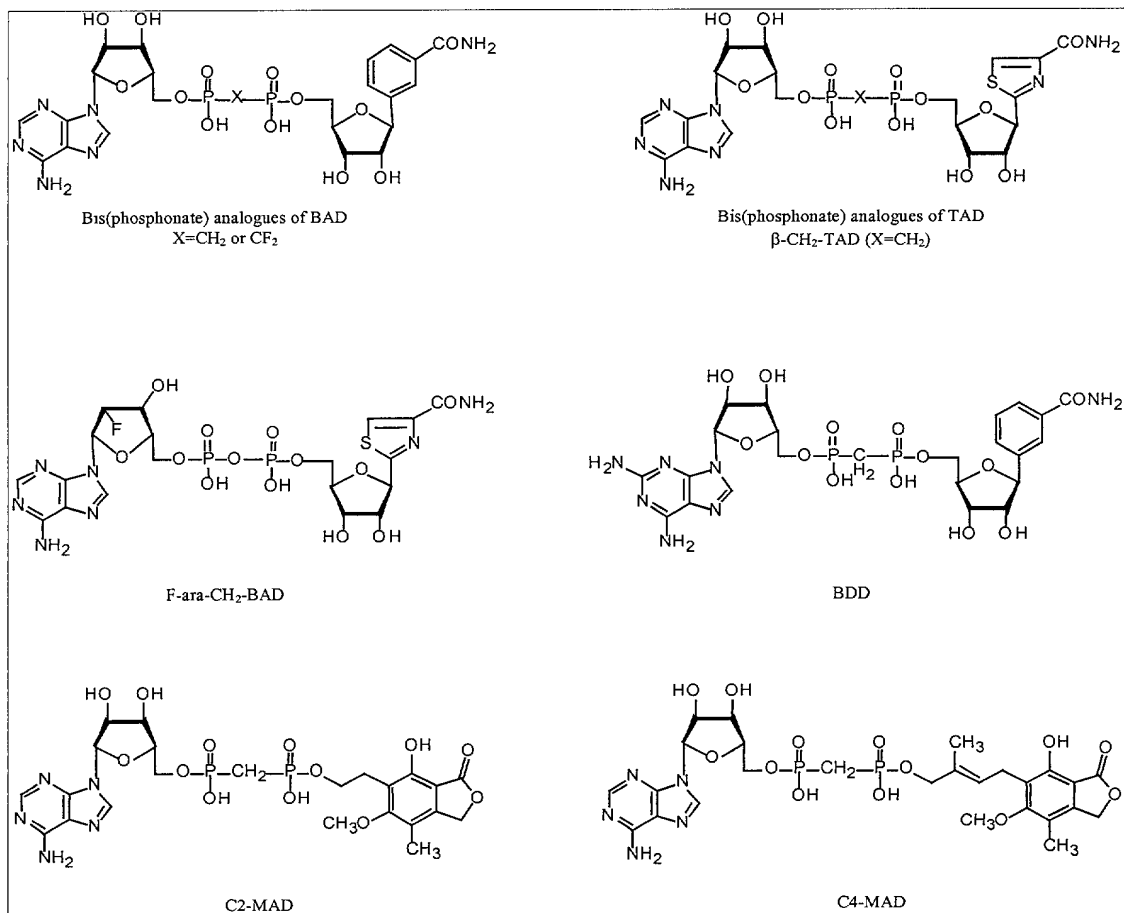
R^5 is halogen (F, Cl, Br, I), CN , CONH_2 , CO_2Me , CO_2Et or CO_2H ; and

R^6 , R^7 , R^8 and R^9 are independently a lower alkane or alkene of 1, 2, 3, 4, 5 or 6 carbons or aryl or aralkyl;

wherein the compound is specifically not tiazole-4-carboxamide adenine dinucleotide (TAD) or benzamide adenine dinucleotide (BAD);

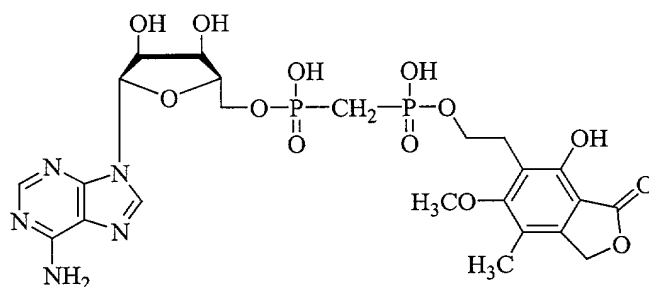
in combination with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

16. The pharmaceutical composition of Claim 15, wherein the compound of formula (I) is selected from the group consisting of the following:



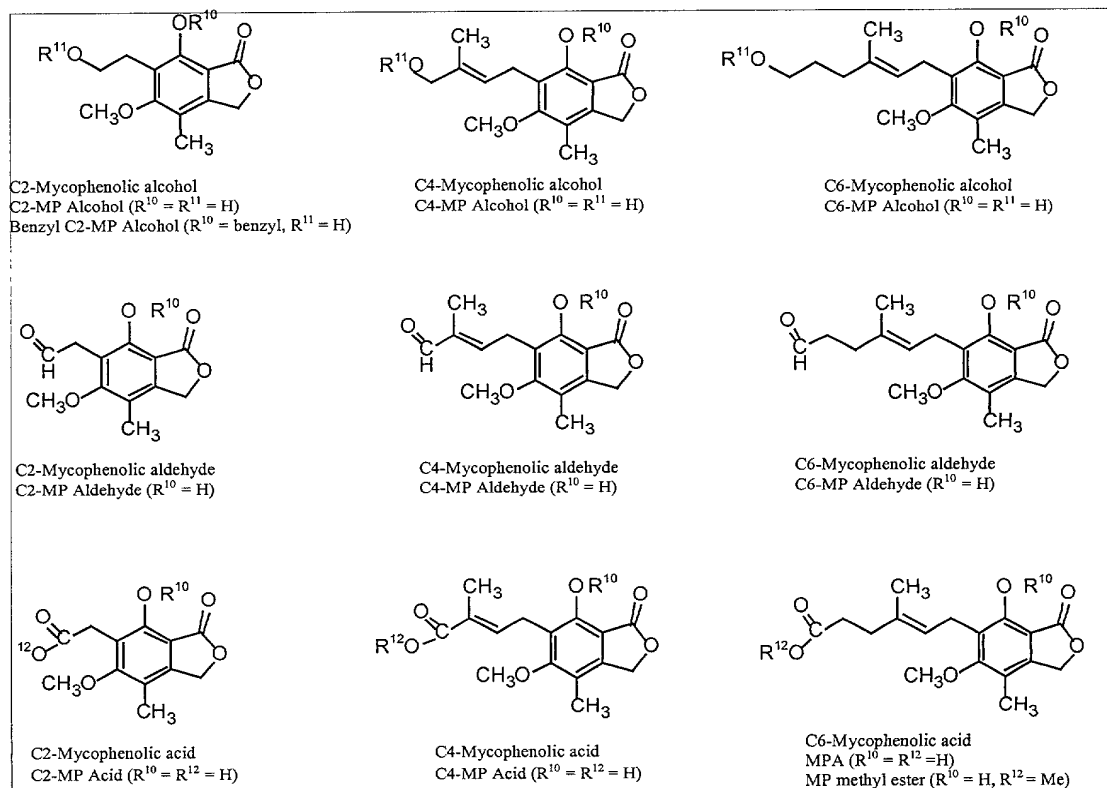
or its pharmaceutically acceptable salt thereof, wherein X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene.

17. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound of the formula:



or its pharmaceutically acceptable salt thereof, in combination with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

18. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound selected from the group consisting of the following:

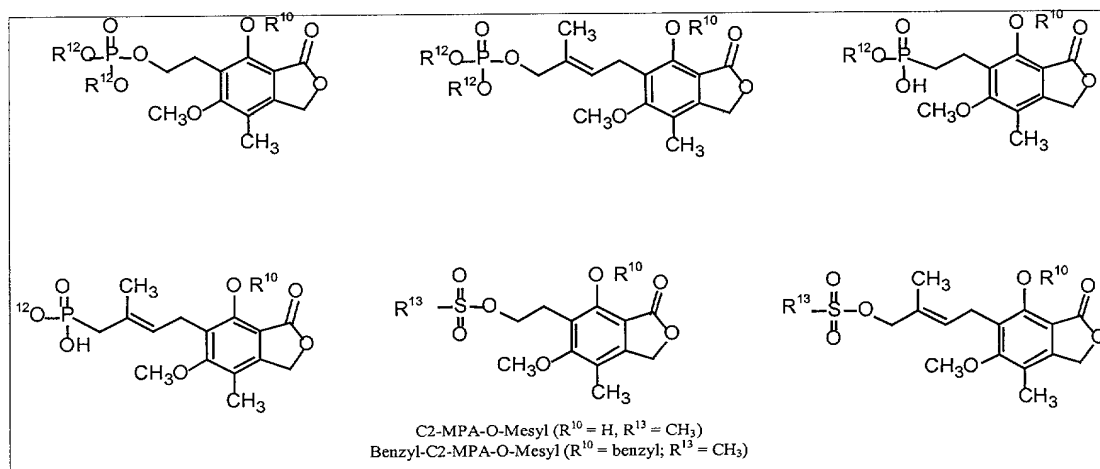


or its pharmaceutically acceptable salt thereof; wherein

each R^{10} and R^{11} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group, and each R^{12} is independently hydrogen, alkyl or aryl;

in combination with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

19. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound selected from the group consisting of the following:



or its pharmaceutically acceptable salt thereof; wherein

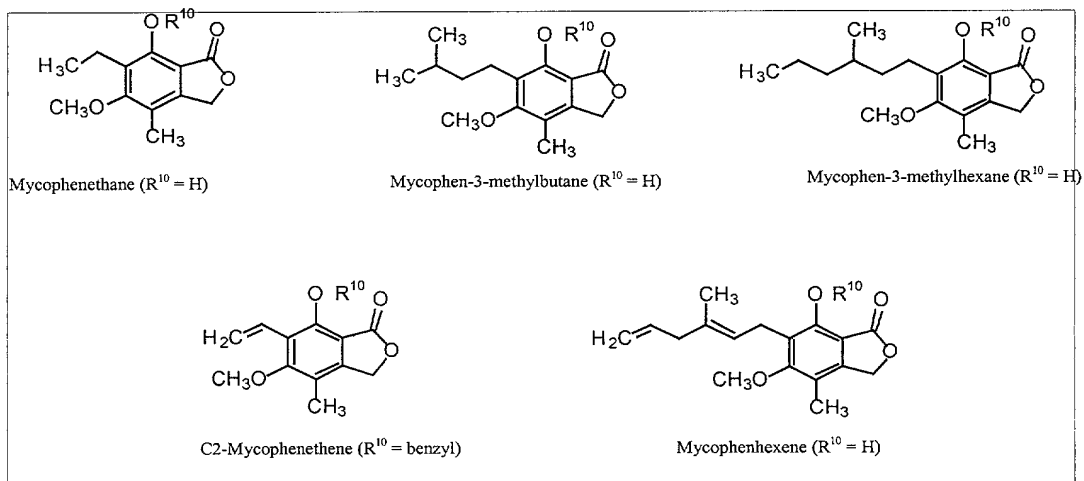
each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

each R^{12} is independently hydrogen, alkyl or aryl; and

R^{13} is lower alkyl (i.e. a C_1 , C_2 , C_3 , C_4 , C_5 or C_6 alkyl), lower alkenyl (i.e. a C_2 , C_3 , C_4 , C_5 or C_6 alkenyl), lower alkynyl (i.e. a C_2 , C_3 , C_4 , C_5 or C_6 alkynyl) or a C_3 - C_8 cycloalkyl;

in combination with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

20. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound selected from the group consisting of the following:

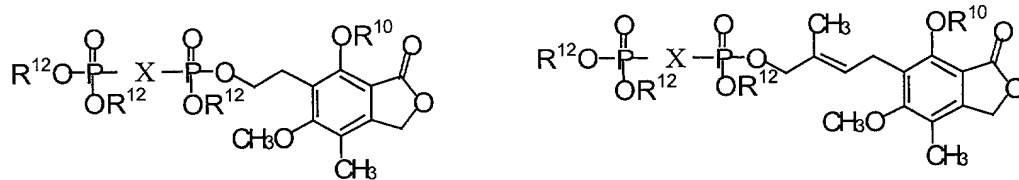


or its pharmaceutically acceptable salt thereof; wherein

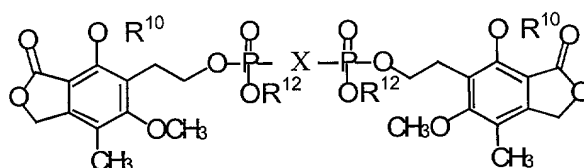
each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

in combination with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

21. A pharmaceutical composition for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising an effective amount of a compound selected from the group consisting of the following:



C4-MPA Alcohol-ethylenebis(phosphonate)



or its pharmaceutically acceptable salt thereof, wherein

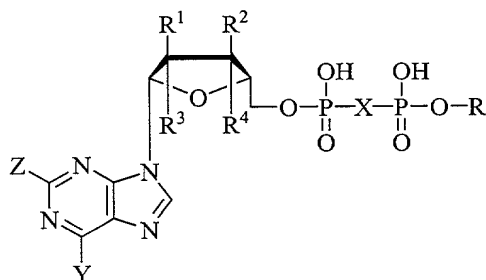
X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene; and

each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group; and

each R^{12} is independently hydrogen, alkyl or aryl;

in combination with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

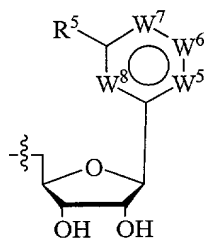
22. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound of the formula (I):



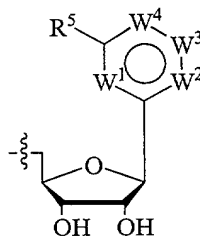
(I)

or its pharmaceutically acceptable salt thereof; wherein

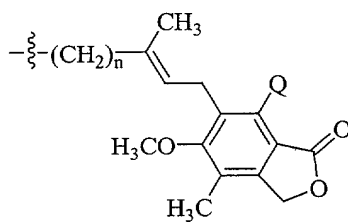
R is



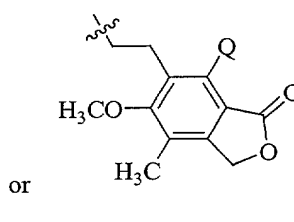
(II)



(III)



(IV)



(V) ;

X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene;

Y is hydrogen, halogen (F, Cl, Br, I), NH₂, NHR⁶, NR⁶R⁷, NHOH, NHOR⁶, NHNH₂, NR⁶NH₂, NHNHR⁶, SH, SR⁶, OH or OR⁶;

Z is hydrogen, halogen (F, Cl, Br, I), NH₂, NHR⁸, NR⁸R⁹, NHOH, NHOR⁸, NHNH₂, NR⁸NH₂, NHNHR⁸, SH, SR⁸, OH, OR⁸;

W^1 - W^4 are same or different, and independently methyne (-CH=), azomethyne (-N=) or sulfur;

W^5 - W^8 are same or different, and independently methyne (-CH=) or azomethyne (-N=);

R^1 , R^2 , R^3 and R^4 are independently hydrogen, hydroxyl or fluorine;

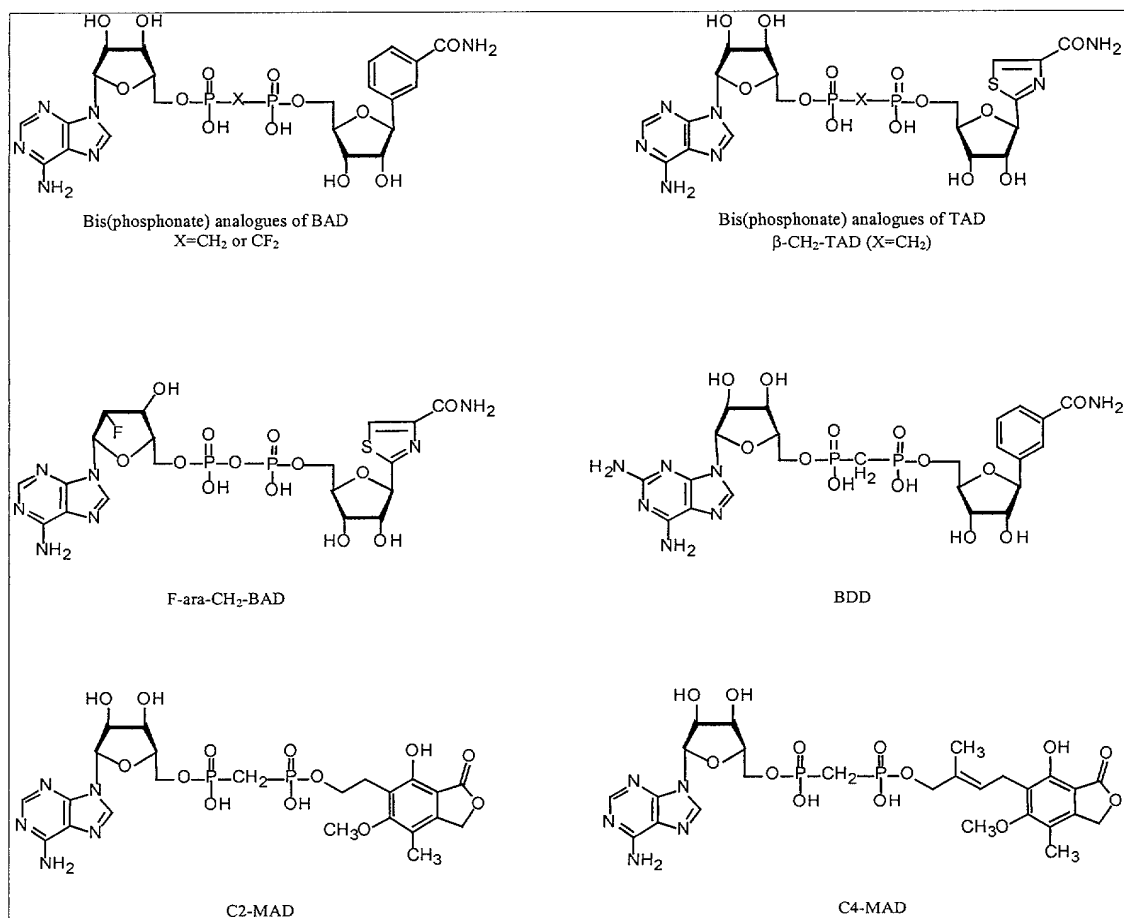
R^5 is halogen (F, Cl, Br, I), CN, CONH₂, CO₂Me, CO₂Et or CO₂H; and

R^6 , R^7 , R^8 and R^9 are independently a lower alkane or alkene of 1, 2, 3, 4, 5 or 6 carbons or aryl or aralkyl;

wherein the compound is specifically not tiazole-4-carboxamide adenine dinucleotide (TAD) or benzamide adenine dinucleotide (BAD);

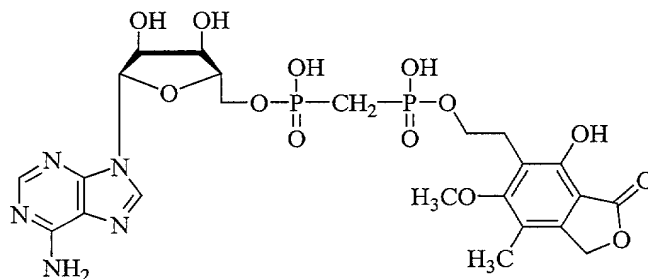
optionally in a pharmaceutically acceptable carrier or diluent.

23. The method of Claim 22, wherein the compound of formula (I) is selected from the group consisting of the following:



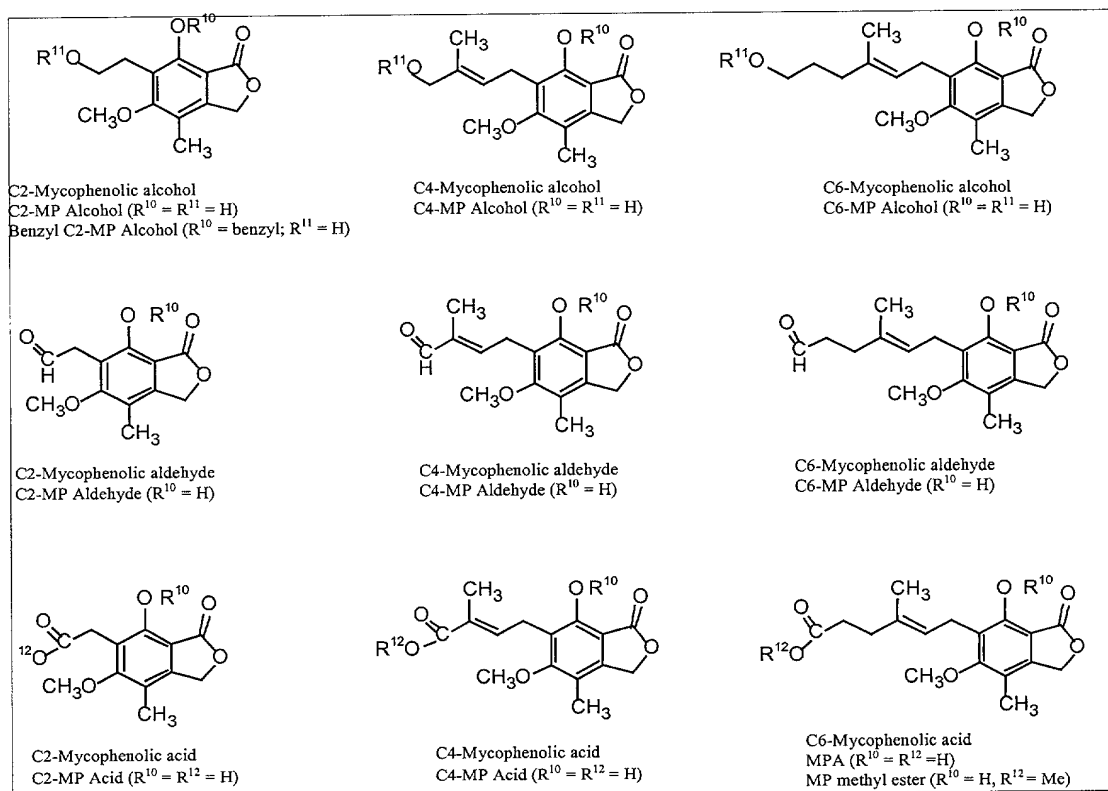
or its pharmaceutically acceptable salt thereof, wherein X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene.

24. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound of the formula:



or its pharmaceutically acceptable salt thereof, optionally in a pharmaceutically acceptable carrier or diluent.

25. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:

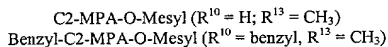


or its pharmaceutically acceptable salt thereof; wherein

each R^{10} and R^{11} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group, and each R^{12} is independently hydrogen, alkyl or aryl;

optionally in a pharmaceutically acceptable carrier or diluent.

- | Year | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1970 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |

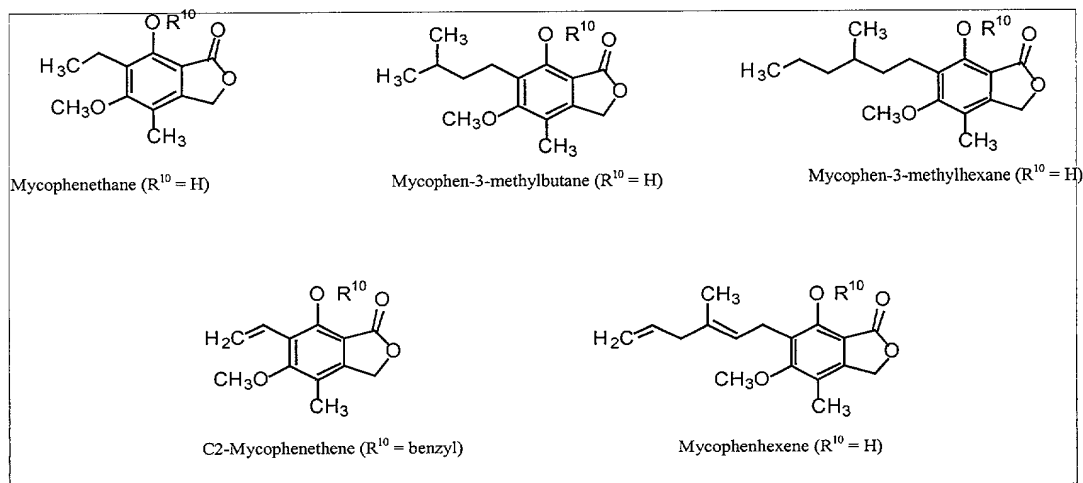


each R¹⁰ is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

R¹³ is lower alkyl (i.e. a C₁, C₂, C₃, C₄, C₅ or C₆ alkyl), lower alkenyl (i.e. a C₂, C₃, C₄, C₅ or C₆ alkenyl), lower alkynyl (i.e. a C₂, C₃, C₄, C₅ or C₆ alkynyl) or a C₃-C₈ cycloalkyl;

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27. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:

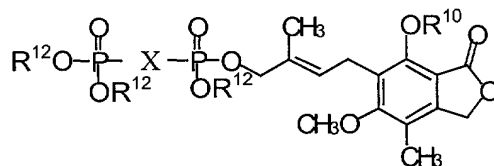
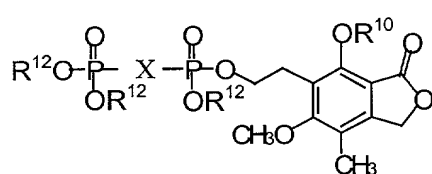


or its pharmaceutically acceptable salt thereof; wherein

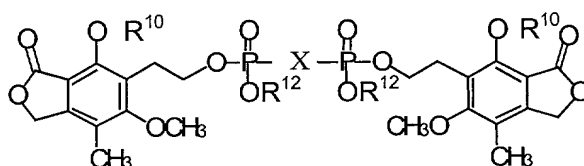
each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

optionally in a pharmaceutically acceptable carrier or diluent.

28. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:



C4-MPA alcohol-ethylenebis(phosphonate)



or its pharmaceutically acceptable salt thereof, wherein

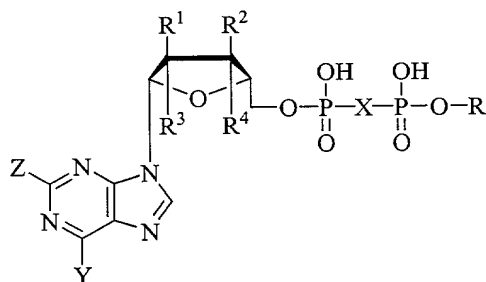
X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene; and

each R¹⁰ is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group; and

each R¹² is independently hydrogen, alkyl or aryl;

optionally in a pharmaceutically acceptable carrier or diluent.

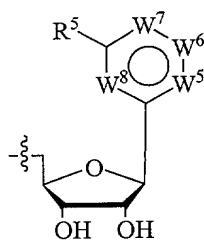
29. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound of the formula (I):



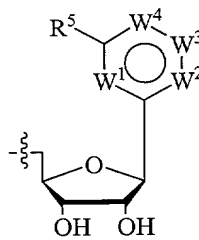
(I)

or its pharmaceutically acceptable salt thereof; wherein

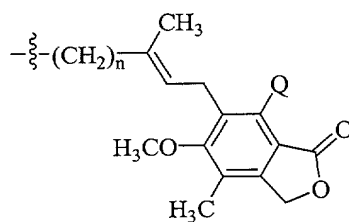
R is



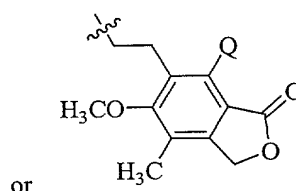
(II)



(III)



(IV)



(V)

;

X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene;

Y is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^6 , NR^6R^7 , NHOH , NHOR^6 , NHNH_2 , NR^6NH_2 , NHNHR^6 , SH , SR^6 , OH or OR^6 ;

Z is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^8 , NR^8R^9 , NHOH , NHOR^8 , NHNH_2 , NR^8NH_2 , NHNHR^8 , SH , SR^8 , OH , OR^8 ;

W¹-W⁴ are same or different, and independently methyne (-CH=), azomethyne (-N=) or sulfur;

W⁵-W⁸ are same or different, and independently methyne (-CH=) or azomethyne (-N=);

R¹, R², R³ and R⁴ are independently hydrogen, hydroxyl or fluorine;

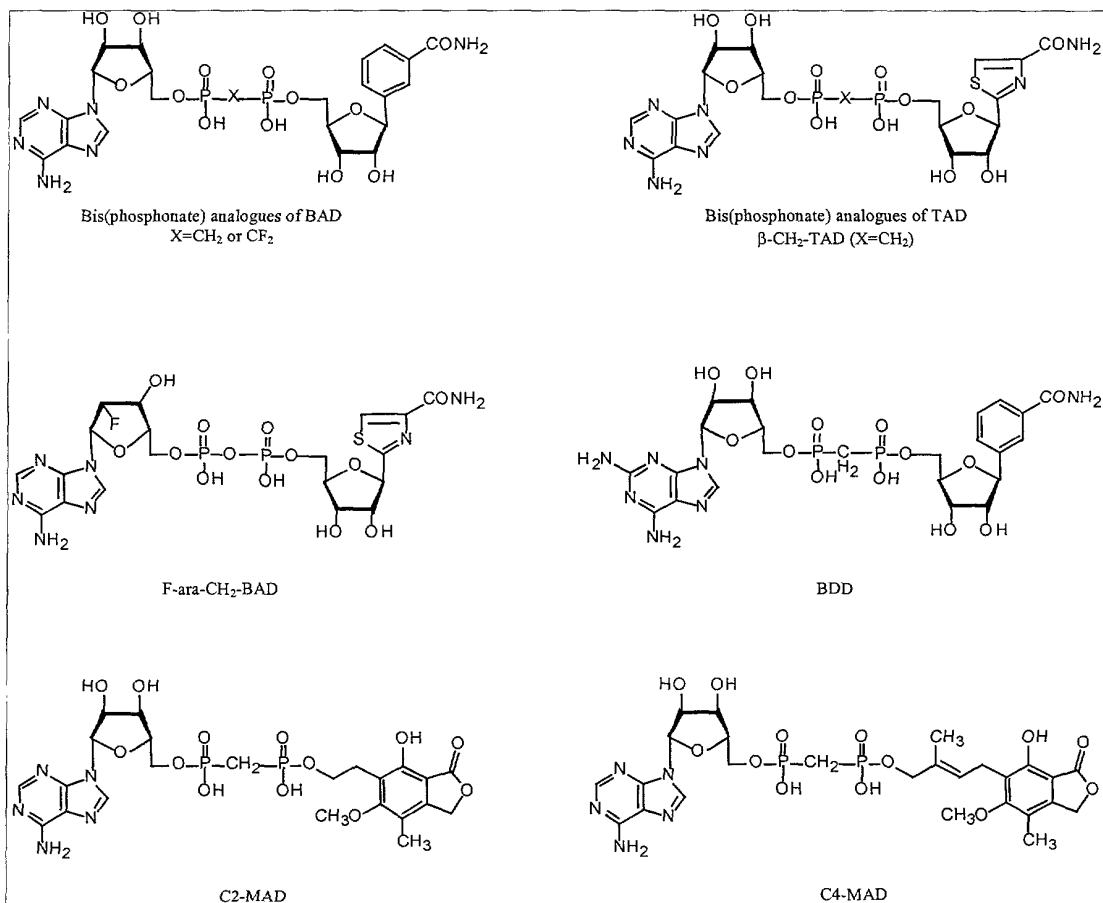
R⁵ is halogen (F, Cl, Br, I), CN, CONH₂, CO₂Me, CO₂Et or CO₂H; and

R⁶, R⁷, R⁸ and R⁹ are independently a lower alkane or alkene of 1, 2, 3, 4, 5 or 6 carbons or aryl or aralkyl;

wherein the compound is specifically not tiazole-4-carboxamide adenine dinucleotide (TAD) or benzamide adenine dinucleotide (BAD);

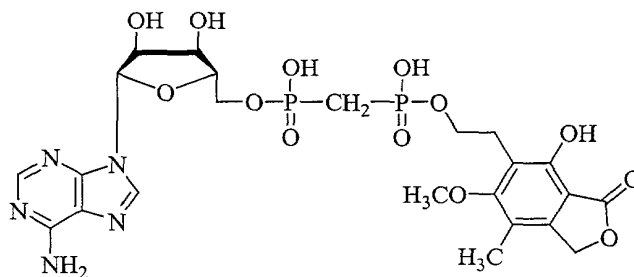
in combination or alternation with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

30. The method of Claim 29, wherein the compound of formula (I) is selected from the group consisting of the following:



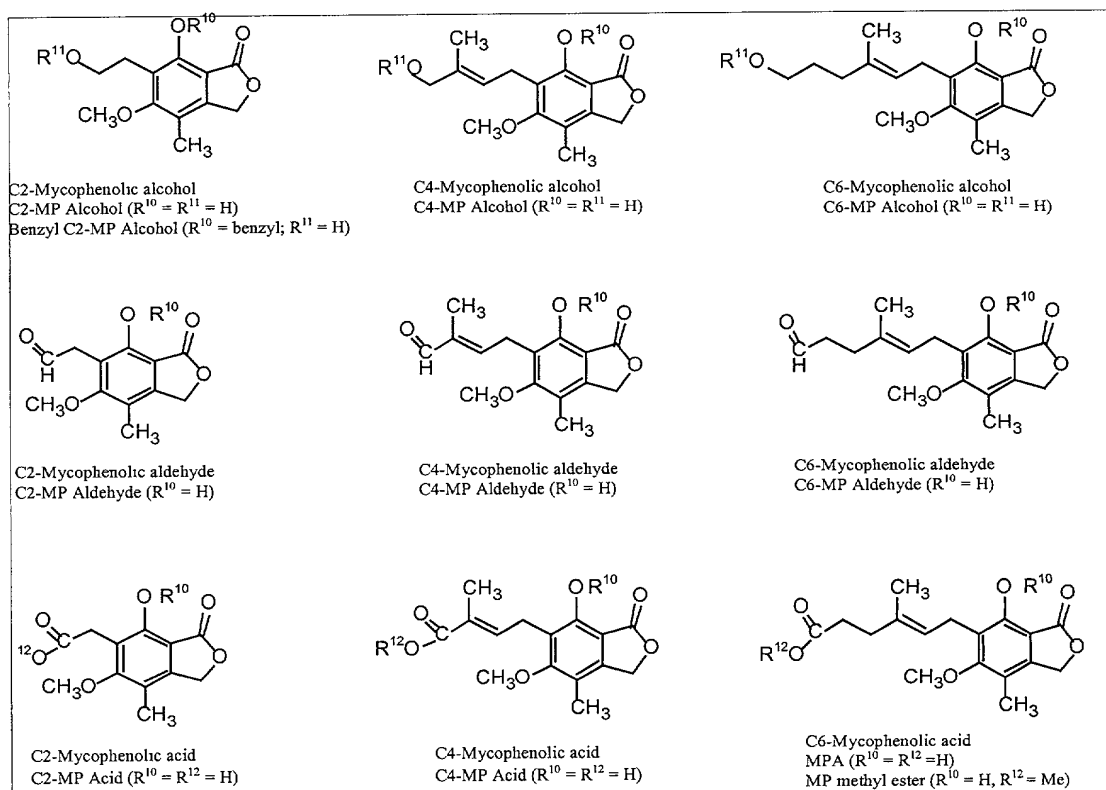
or its pharmaceutically acceptable salt thereof, wherein X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene.

31. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound of the formula;



or its pharmaceutically acceptable salt thereof, in combination or alternation with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

32. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:

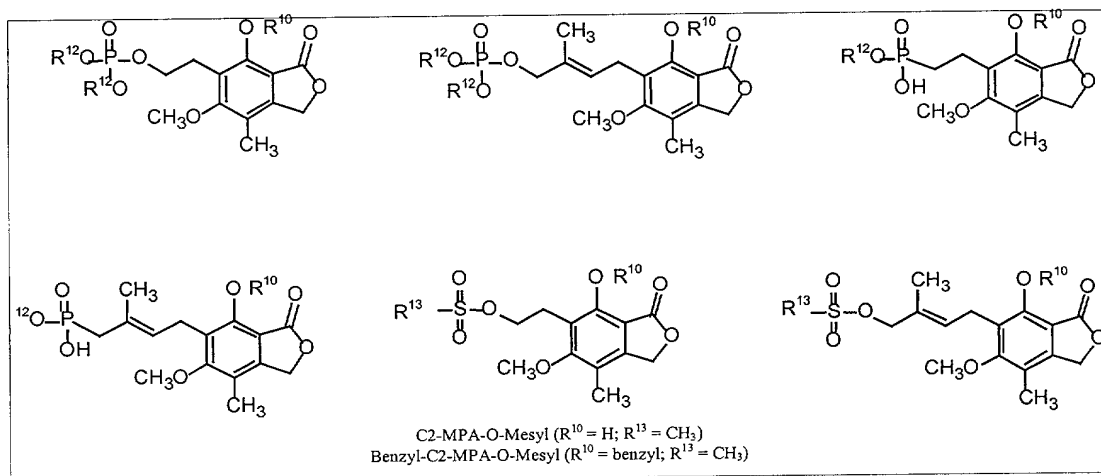


or its pharmaceutically acceptable salt thereof; wherein

each R^{10} and R^{11} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group, and each R^{12} is independently hydrogen, alkyl or aryl;

in combination or alternation with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

33. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:



or its pharmaceutically acceptable salt thereof; wherein

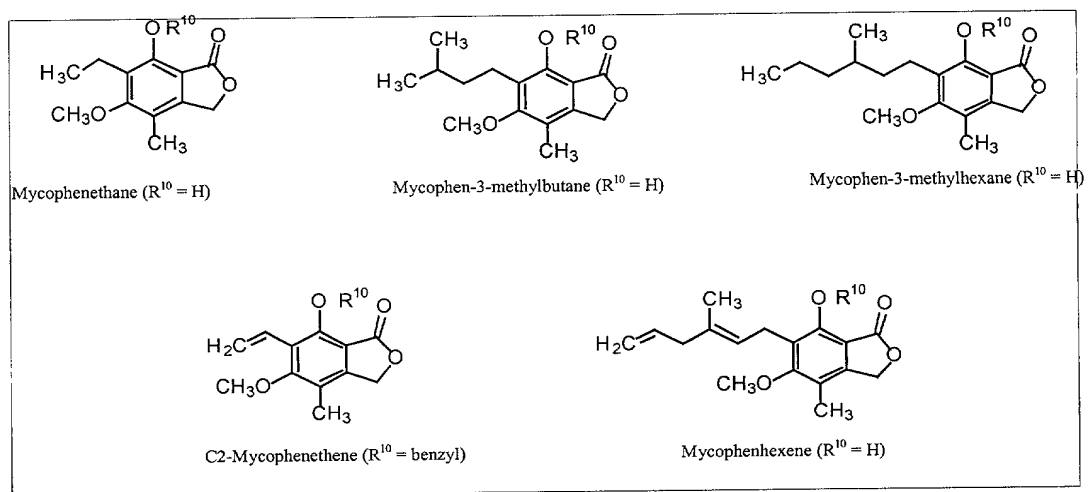
each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

each R^{12} is independently hydrogen, alkyl or aryl; and

R^{13} is lower alkyl (i.e. a C_1 , C_2 , C_3 , C_4 , C_5 or C_6 alkyl), lower alkenyl (i.e. a C_2 , C_3 , C_4 , C_5 or C_6 alkenyl), lower alkynyl (i.e. a C_2 , C_3 , C_4 , C_5 or C_6 alkynyl) or a C_3 - C_8 cycloalkyl;

in combination or alternation with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

34. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:

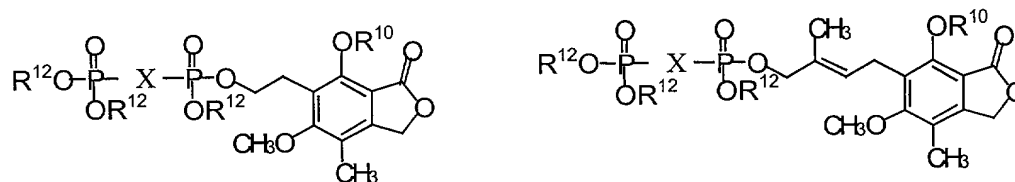


or its pharmaceutically acceptable salt thereof; wherein

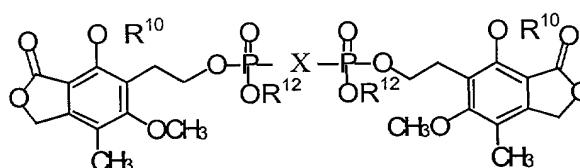
each R¹⁰ is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

in combination or alternation with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

35. A method for the treatment or prophylaxis of a Flaviviridae infection in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:



C4-MPA alcohol-ethylenebis(phosphonate)



or its pharmaceutically acceptable salt thereof, wherein

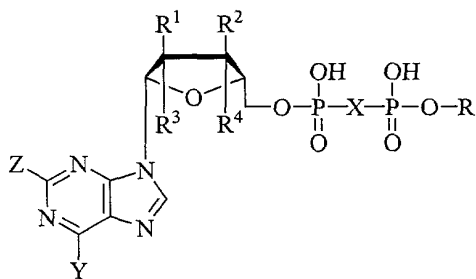
X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene; and

each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group; and

each R^{12} is independently hydrogen, alkyl or aryl;

in combination or alternation with one or more other antivirally effective agent, optionally in a pharmaceutically acceptable carrier or diluent.

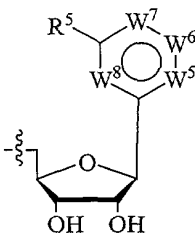
36. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound of the formula (I):



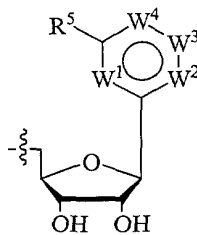
(I)

or its pharmaceutically acceptable salt thereof; wherein

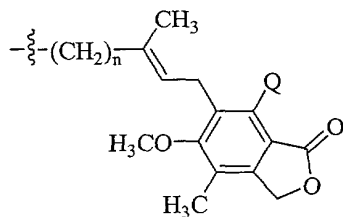
R is



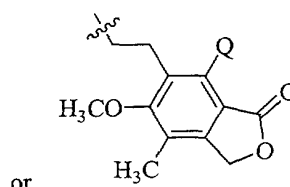
(II)



(III)



(IV)



(V)

X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene;

Y is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^6 , NR^6R^7 , NHOH , NHOR^6 , NHNH_2 , NR^6NH_2 , NHNHR^6 , SH , SR^6 , OH or OR^6 ;

Z is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^8 , NR^8R^9 , NHOH , NHOR^8 , NHNH_2 , NR^8NH_2 , NHNHR^8 , SH , SR^8 , OH , OR^8 ;

$\text{W}^1\text{-W}^4$ are same or different, and independently methyne ($-\text{CH}=\text{}$), azomethyne ($-\text{N}=\text{}$) or sulfur;

$\text{W}^5\text{-W}^8$ are same or different, and independently methyne ($-\text{CH}=\text{}$) or azomethyne ($-\text{N}=\text{}$);

R^1 , R^2 , R^3 and R^4 are independently hydrogen, hydroxyl or fluorine;

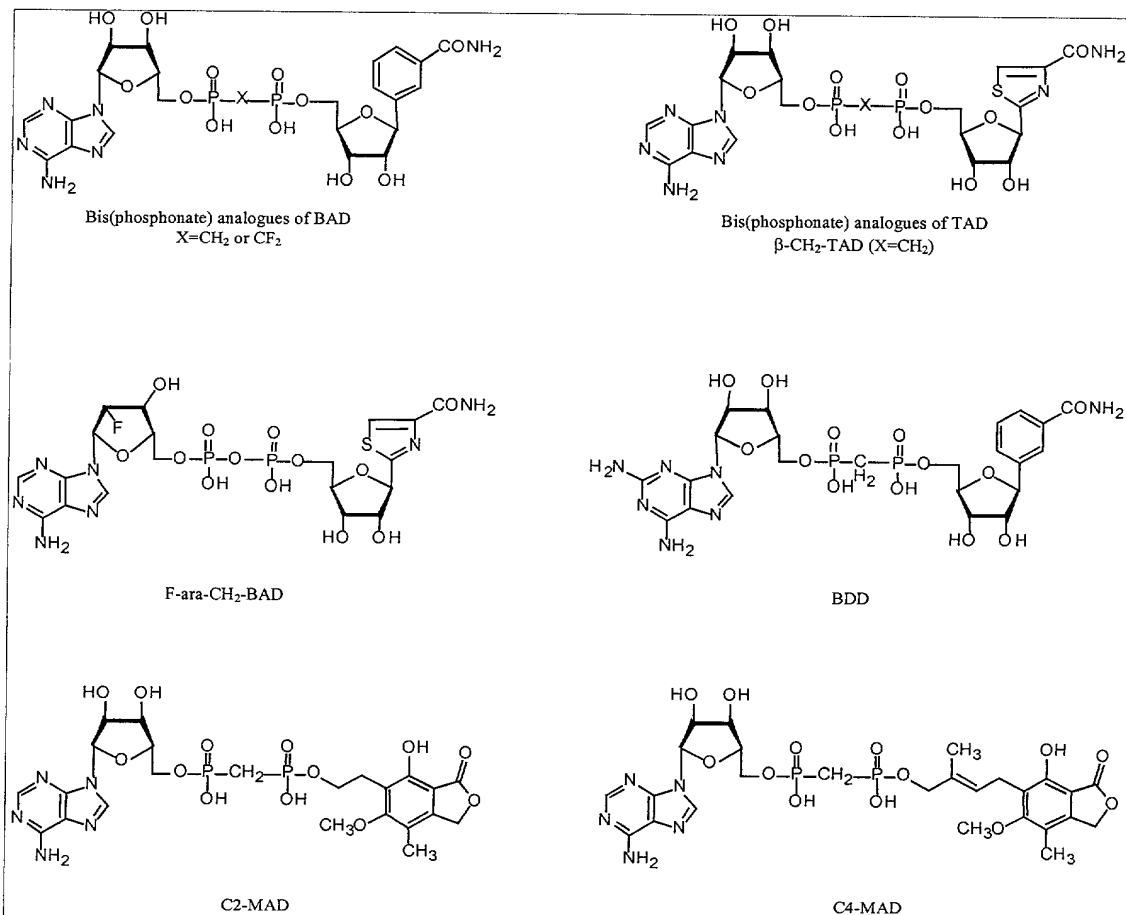
R^5 is halogen (F, Cl, Br, I), CN , CONH_2 , CO_2Me , CO_2Et or CO_2H ; and

R^6 , R^7 , R^8 and R^9 are independently a lower alkane or alkene of 1, 2, 3, 4, 5 or 6 carbons or aryl or aralkyl;

wherein the compound is specifically not tiazole-4-carboxamide adenine dinucleotide (TAD) or benzamide adenine dinucleotide (BAD);

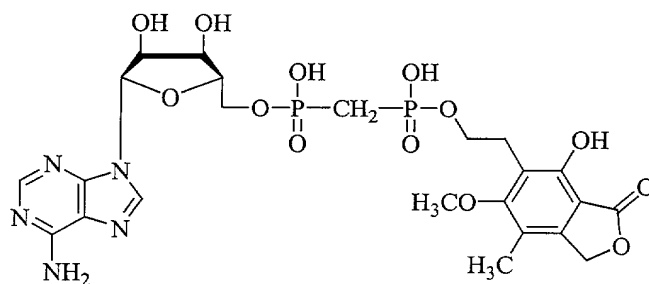
optionally in a pharmaceutically acceptable carrier or diluent.

37. The method of Claim 22, wherein the compound of formula (I) is selected from the group consisting of the following:



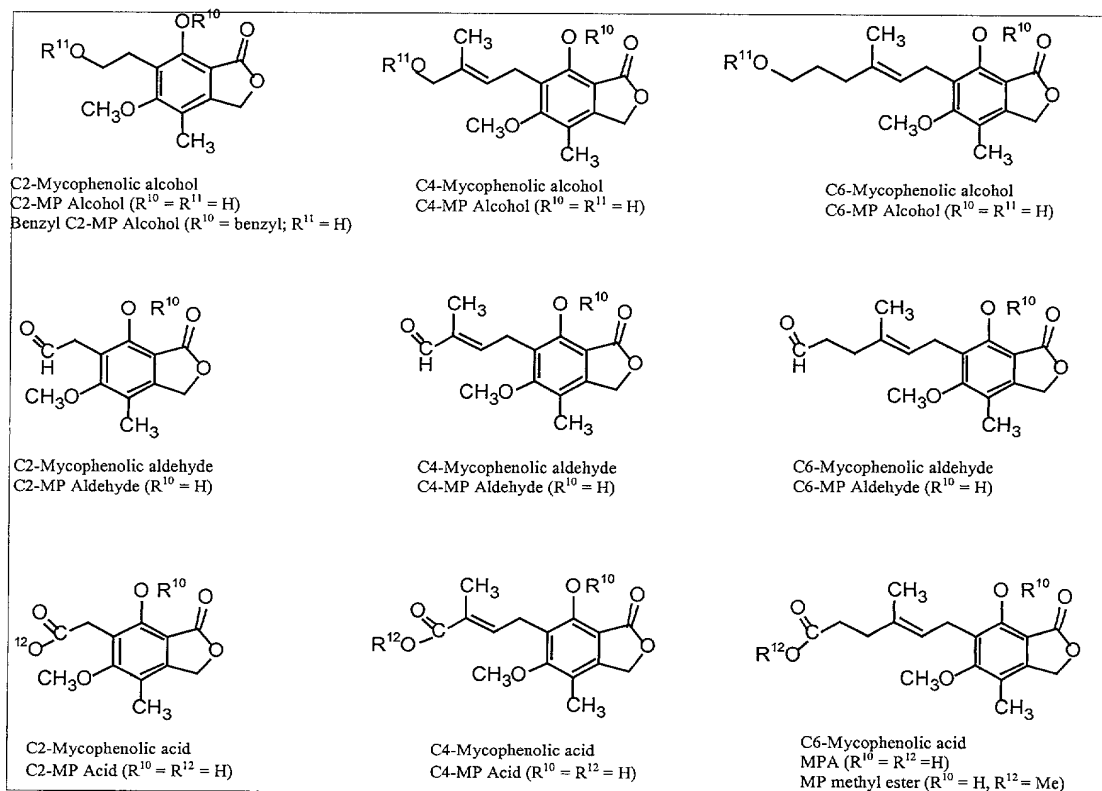
or its pharmaceutically acceptable salt thereof, wherein X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene.

38. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound of the formula:



or its pharmaceutically acceptable salt thereof, optionally in a pharmaceutically acceptable carrier or diluent.

39. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:

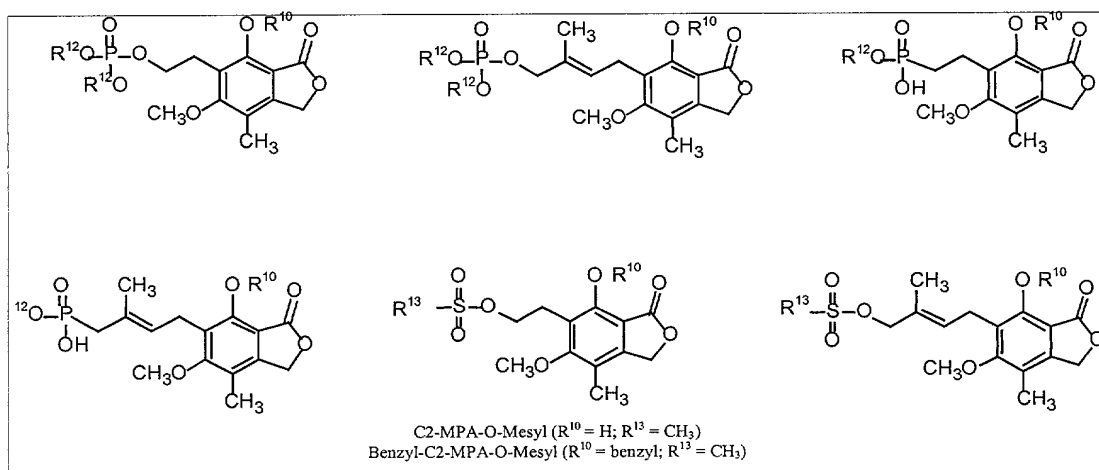


or its pharmaceutically acceptable salt thereof; wherein

each R^{10} and R^{11} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group, and each R^{12} is independently hydrogen, alkyl or aryl;

optionally in a pharmaceutically acceptable carrier or diluent.

40. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:



or its pharmaceutically acceptable salt thereof; wherein

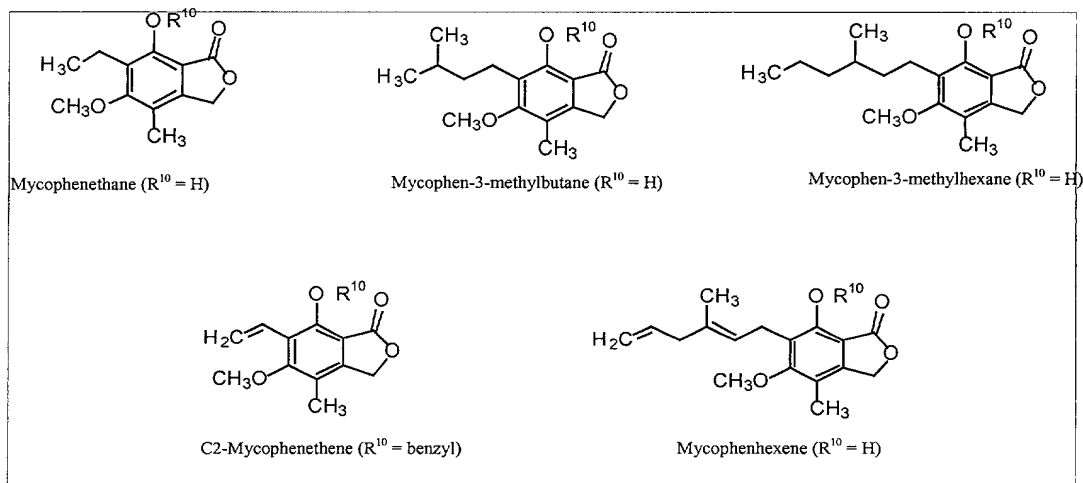
each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

each R^{12} is independently hydrogen, alkyl or aryl; and

R^{13} is lower alkyl (i.e. a C_1 , C_2 , C_3 , C_4 , C_5 or C_6 alkyl), lower alkenyl (i.e. a C_2 , C_3 , C_4 , C_5 or C_6 alkenyl), lower alkynyl (i.e. a C_2 , C_3 , C_4 , C_5 or C_6 alkynyl) or a C_3 - C_8 cycloalkyl;

optionally in a pharmaceutically acceptable carrier or diluent.

41. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:

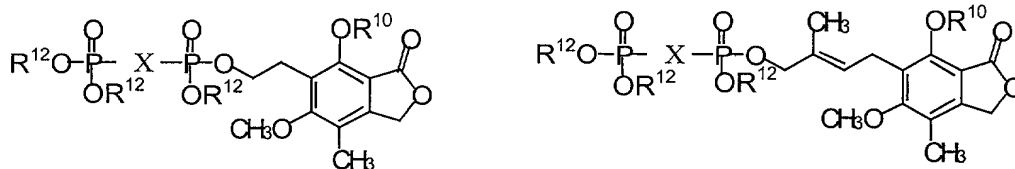


or its pharmaceutically acceptable salt thereof; wherein

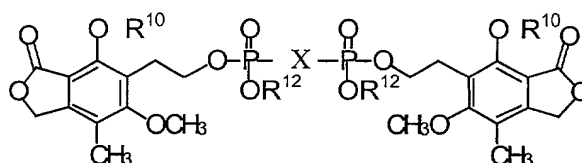
each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

optionally in a pharmaceutically acceptable carrier or diluent.

42. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:



C4-MPA alcohol-ethylenebis(phosphonate)



or its pharmaceutically acceptable salt thereof, wherein

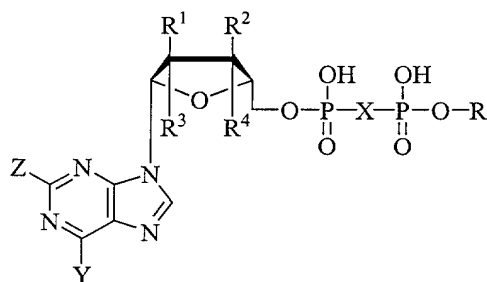
X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene; and

each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group; and

each R^{12} is independently hydrogen, alkyl or aryl;

optionally in a pharmaceutically acceptable carrier or diluent.

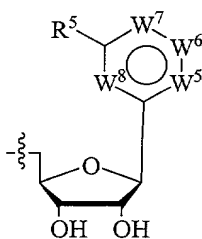
43. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound of the formula (I):



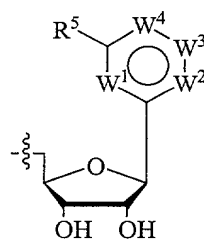
(I)

or its pharmaceutically acceptable salt thereof; wherein

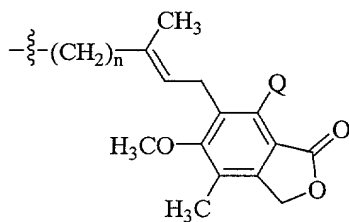
R is



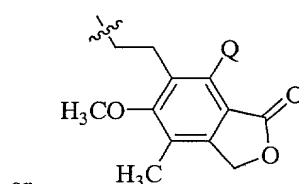
(II)



(III)



(IV)



(V)

;

X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene;

Y is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^6 , NR^6R^7 , NHOH , NHOR^6 , NHNH_2 , NR^6NH_2 , NHNHR^6 , SH , SR^6 , OH or OR^6 ;

Z is hydrogen, halogen (F, Cl, Br, I), NH_2 , NHR^8 , NR^8R^9 , NHOH , NHOR^8 , NHNH_2 , NR^8NH_2 , NHNHR^8 , SH , SR^8 , OH , OR^8 ;

$\text{W}^1\text{-W}^4$ are same or different, and independently methyne ($-\text{CH}=\text{}$), azomethyne ($-\text{N}=\text{}$) or sulfur;

$\text{W}^5\text{-W}^8$ are same or different, and independently methyne ($-\text{CH}=\text{}$) or azomethyne ($-\text{N}=\text{}$);

R^1 , R^2 , R^3 and R^4 are independently hydrogen, hydroxyl or fluorine;

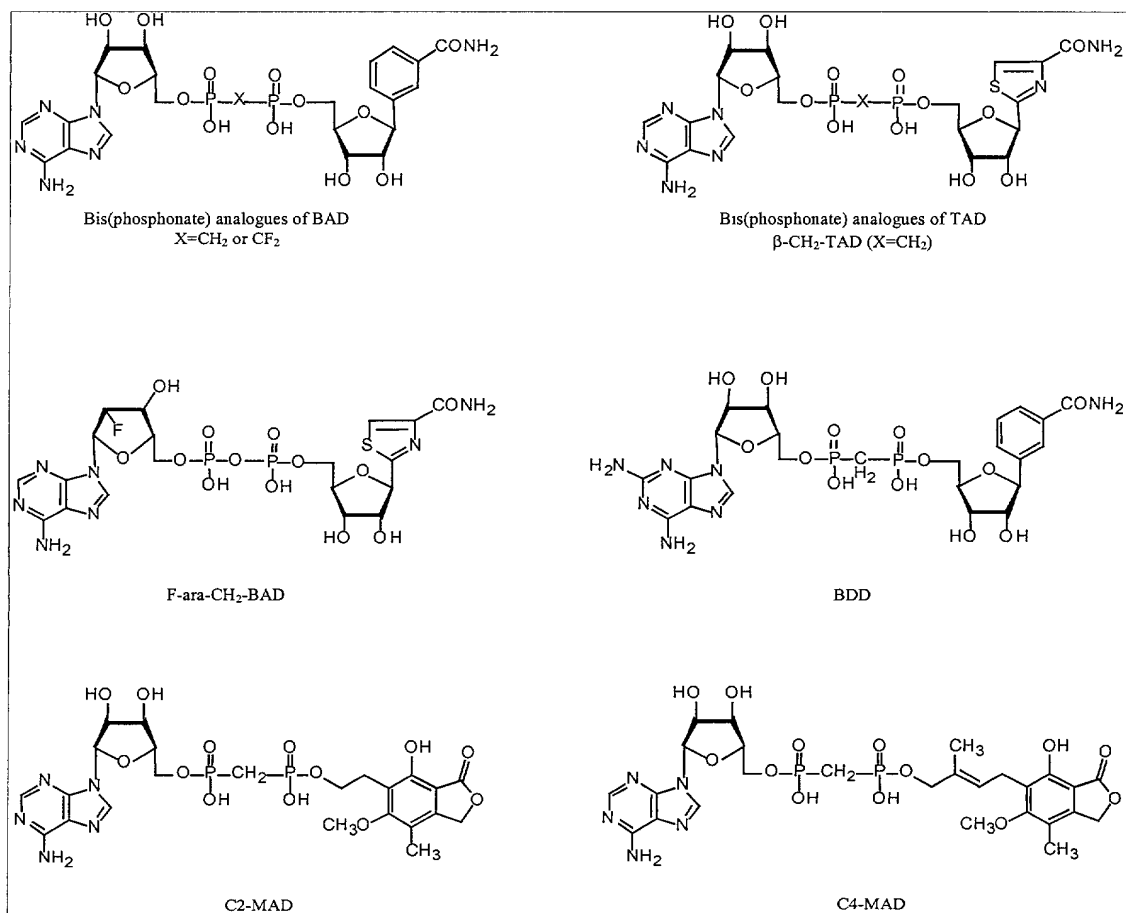
R^5 is halogen (F, Cl, Br, I), CN , CONH_2 , CO_2Me , CO_2Et or CO_2H ; and

R^6 , R^7 , R^8 and R^9 are independently a lower alkane or alkene of 1, 2, 3, 4, 5 or 6 carbons or aryl or aralkyl;

wherein the compound is specifically not tiazole-4-carboxamide adenine dinucleotide (TAD) or benzamide adenine dinucleotide (BAD);

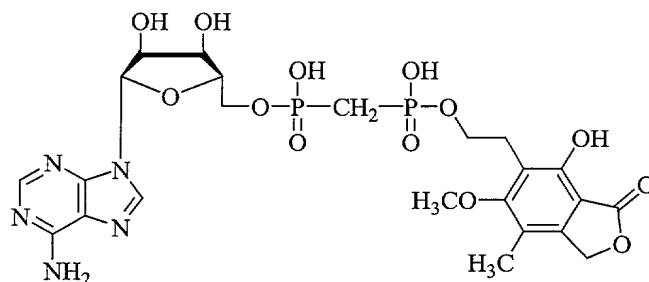
in combination or alternation with one or more other effective antiproliferative agent, optionally in a pharmaceutically acceptable carrier or diluent.

44. The method of Claim 29, wherein the compound of formula (I) is selected from the group consisting of the following:



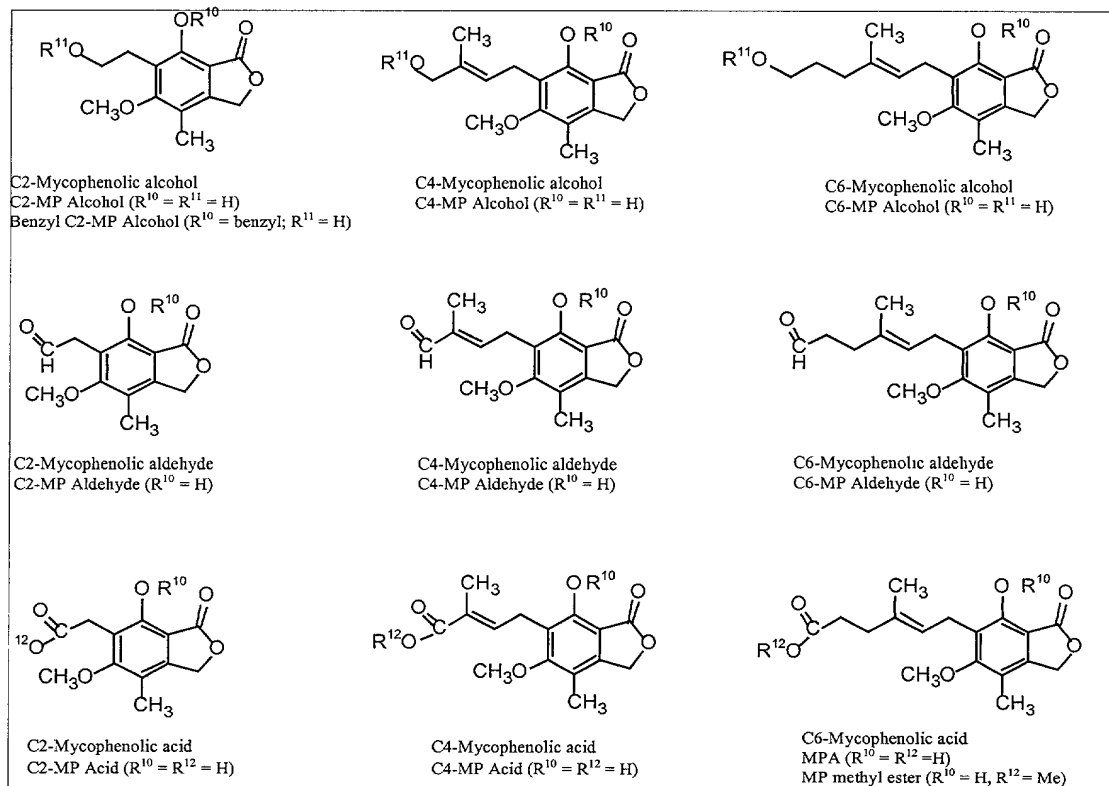
or its pharmaceutically acceptable salt thereof, wherein X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene.

45. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound of the formula;



or its pharmaceutically acceptable salt thereof, in combination or alternation with one or more other effective antiproliferative agent, optionally in a pharmaceutically acceptable carrier or diluent.

46. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:

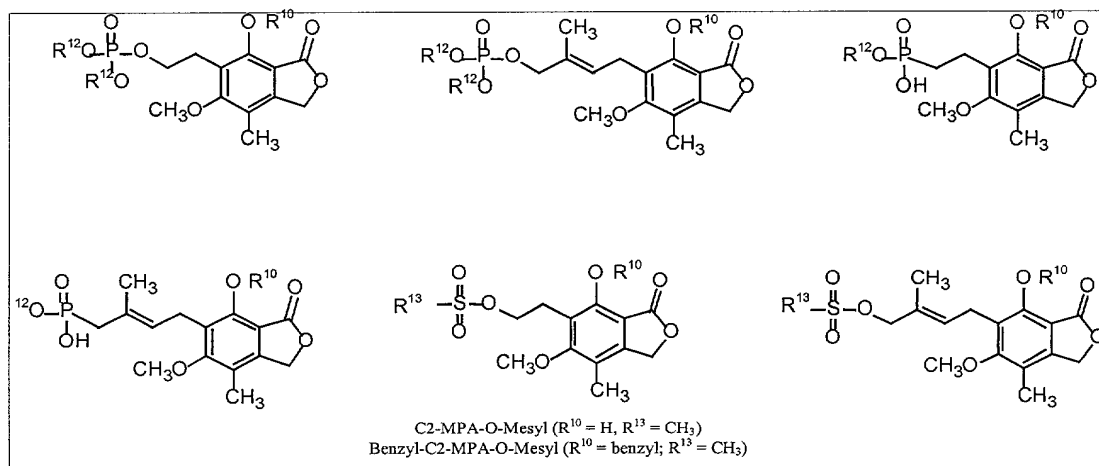


or its pharmaceutically acceptable salt thereof; wherein

each R^{10} and R^{11} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group, and each R^{12} is independently hydrogen, alkyl or aryl;

in combination or alternation with one or more other effective antiproliferative agent, optionally in a pharmaceutically acceptable carrier or diluent.

47. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:



or its pharmaceutically acceptable salt thereof; wherein

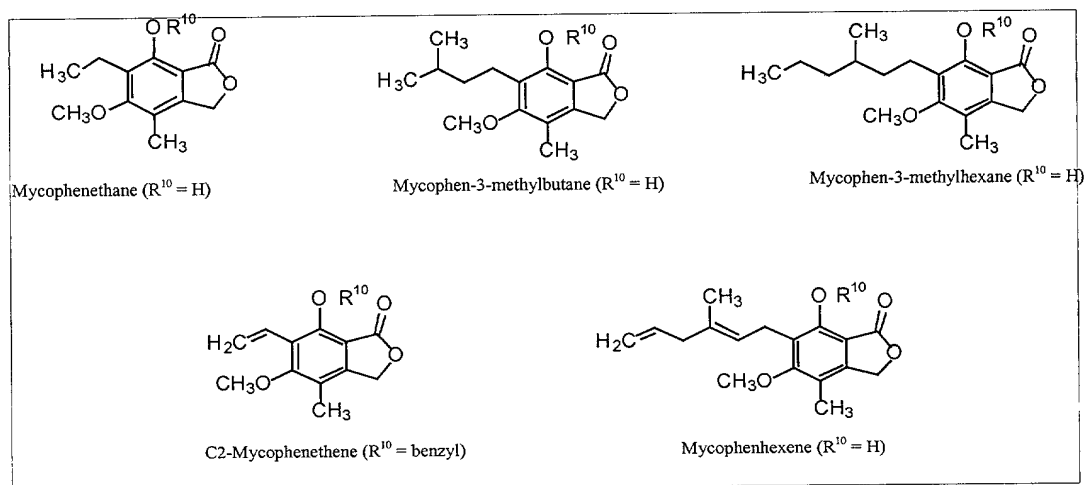
each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

each R^{12} is independently hydrogen, alkyl or aryl; and

R^{13} is lower alkyl (i.e. a C_1 , C_2 , C_3 , C_4 , C_5 or C_6 alkyl), lower alkenyl (i.e. a C_2 , C_3 , C_4 , C_5 or C_6 alkenyl), lower alkynyl (i.e. a C_2 , C_3 , C_4 , C_5 or C_6 alkynyl) or a C_3 - C_8 cycloalkyl;

in combination or alternation with one or more other effective antiproliferative agent, optionally in a pharmaceutically acceptable carrier or diluent.

48. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:

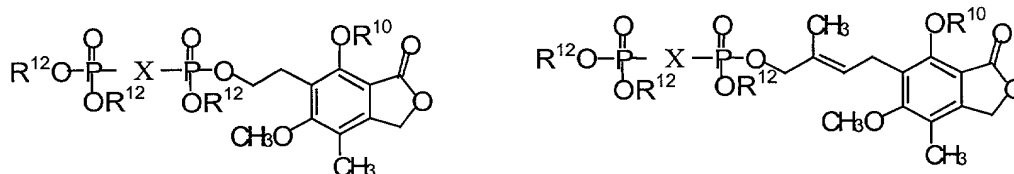


or its pharmaceutically acceptable salt thereof; wherein

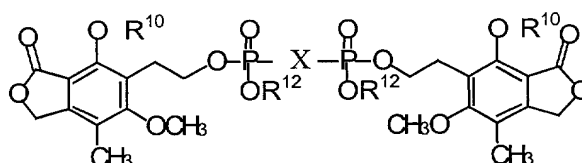
each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group;

in combination or alternation with one or more other effective antiproliferative agent, optionally in a pharmaceutically acceptable carrier or diluent.

49. A method for the treatment or prophylaxis of abnormal cellular proliferation in a host, comprising administering an effective amount of a compound selected from the group consisting of the following:



C4-MPA Alcohol-ethylenebis(phosphonate)



or its pharmaceutically acceptable salt thereof, wherein

X is oxygen, sulfur, methylene, monofluoromethylene or difluoromethylene; and

each R^{10} is independently hydrogen, alkyl, acyl, benzyl or methoxymethyl (MOM) group; and

each R^{12} is independently hydrogen, alkyl or aryl;

in combination or alternation with one or more other effective antiproliferative agent, optionally in a pharmaceutically acceptable carrier or diluent.

50. The method of any one of Claims 22-49, wherein the host is a human.